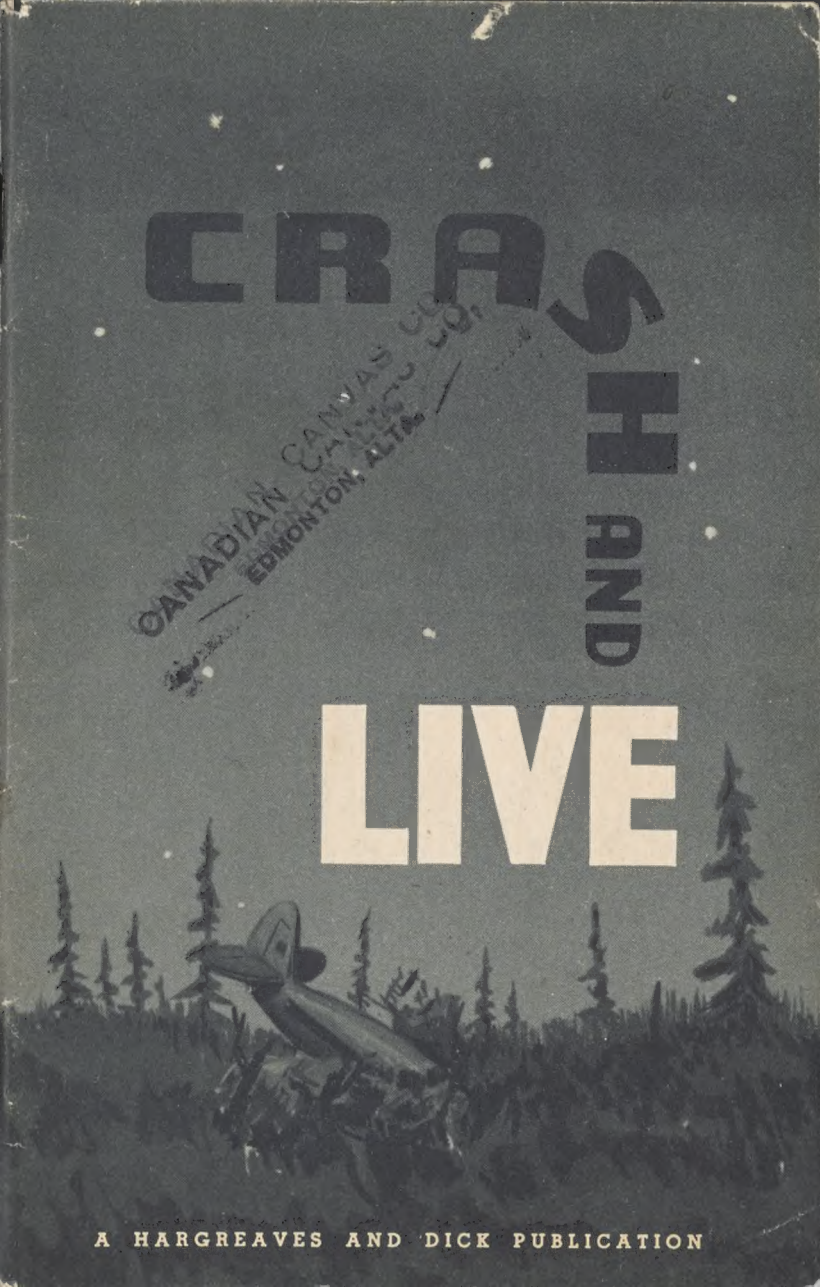
CRASH AND LIVE



A HARGREAVES AND DICK PUBLICATION

Crash and Live

Reading Time 40 Minutes

40 Minutes of Your Time May Mean Your Life

Published by

HARGREAVES AND DICK

Endorsements on file from leading pilots all over Canada and U.S.A.

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To Pilots and Engineers

We read the papers—and read of a pilot we have known for many years who has crashed. The last line may well read, "When the rescue party arrived, the pilot and passengers were dead". We all say, "He was a great pilot—too bad".

Let's suppose we are eye witnesses to that accident. We may well and truly see the pilot make a fairly successful crash-landing, crawl away from the wreckage, crawl back later and find his passengers injured, but living. If he has an emergency kit, knows the contents and how to use those vital medical aids, that pilot can save the lives of his passengers and himself. Need we add—see that your emergency kit is inspected once a month!

—OWEN S. HARGREAVES AND JACK B. DICK

PREFACE

This booklet was prepared in the hope that our experiences as crashed personnel and searchers will be of some help to you. We have tried to include all the angles which you may find will be of assistance to you. You may also think up some new ones—"necessity is the mother of invention". May you stay airborne, but if you do "sit down" where you don't expect to, we hope this booklet will help you.

If you make a good landing, summer or winter, your chances for survival are very good if you are properly equipped for that emergency. If you are not equipped and are found early in the search, you are "lucky". A low cost insurance, therefore, is to be equipped. By being equipped we mean having proper clothing, complete emergency kit sufficient for the number of passengers carried, and maps to cover the terrain over which you are flying. If you have an emergency kit do not just place it in the aircraft but acquaint yourself with the contents and make sure you know how to use them.

Crash and Live

If you have made a "scratchless" landing remove your emergency kits and place them at a safe distance from the aircraft. If you don't know where you are, your emergency kit is your life. On the other hand, some of the plane's passengers or personnel may be injured. You are the doctor and you will have to ascertain whether they can be removed. If they can, do so as quickly as possible, as aircraft have been known to catch fire a long time after they have crashed. Check each person over very carefully for injuries. (This is why a **complete emergency kit** contains **a medical kit** with **directions** on how to treat injuries and how best to use the contents.) Do not permit anyone to wander out of sight; some people have wandered away and have never been found.

If the country is timbered you should at once set about to erect a shelter, preferably close to water. Collect sufficient firewood for cooking and warmth, and green foliage for smoke signals. Also, if possible, you should take a large piece of aircraft fabric or your signal streamer and attach it to some outstanding object, e.g. a high tree, large rock or sandbar.

After erecting camp take complete inventory of the equipment you have on hand. If you decide to look for a better campsite or a more open area for searching aircraft, make full use of your compass for this job, and you may find it necessary to cut to a minimum consumption of your life-giving rations. Your fishing kit should start paying off about this time if you are near a lake or stream. You may have a light rifle and ammunition. Use it. Set up your snares.

LATE SPRING, SUMMER AND EARLY FALL CLOTHING

Before submitting your flight plan for approval make very sure that your clothing is of the type that

will serve you well, both in the air and/or in the bush. This may be cut down to: light underwear, light socks and medium wool socks to wear over these, about a ten inch, medium weight high top boot of a comfortable fit, medium weight drill pants, light shirt, ski cap (light). These items can be supplemented with a pair of gabardine wind pants, an all-wool shirt, handkerchiefs, and sun goggles of the unbreakable, anti-gas type. A mosquito net and repellent are "musts" in the North.

RATIONS

The Ross and H and D Ration include the necessary nutritional value and calorie content and take into consideration the important factor of weight. These rations include enough unconcentrated food to give palatable meals to a person doing strenuous work. Some operators prefer dehydrated food because they can carry more of it than of unconcentrated rations, but even in the bush simplicity in preparing meals is desirable. Instead of eating all your rations first and then starting out to shoot or snare game, it is much wiser to supplement them with the game. Your fishing kit will pay dividends.

After each meal carefully wash your utensils, both eating and cooking; use sand or ashes to scour them. If this rule is not adhered to you will, in the course of a few days, fall victim to a case of stomach sickness which will leave you weak and in no condition to do strenuous work.

FOOD

The following list will teach you which northern plants are edible:

Liquorice-root—Non-climbing perennial herb of the pea family with branching stems, 1 to 2 feet high, with showy pink flowers. The seed-pods are flat, net-veined, 1 to 2 inches long, and joined together in several roundish sections. The root, which is edible, is a well-developed tap root, attaining the thickness of a man's finger. It is widely distributed throughout northern Canada, and is found as far north as the shores of the Arctic ocean.

This root is mature in August and may be gathered in quantities with very little trouble until the ground freezes. In the spring before the new growth has started the roots are even better than in the autumn. During summer the roots become tough and woody. When cooked, the taste of the root resembles that of young carrots, but is more nourishing.

In winter meadow mice cache the roots in subterranean runways near the surface.

LIQUORICE-ROOT

WOOLY LOUSEWORT

Wooly Lousewort—Perennial herb 5 to 8 inches high, with several stems terminated by dense, wooly spikes of rose coloured flowers. The leaf looks somewhat like a fern, forming a rosette at the base of the stem. Towards maturity the stems stretch and often protrude above the snow during winter. The well-developed tap root is sulphur yellow. It is sweet like young carrots and may be eaten raw or cooked. It is found throughout arctic Canada north of the limit of trees.

WILD RHUBARB

SILVER WEED

Silverweed—A low, trailing perennial herb characteristic of gravelly, sandy and loamy sea-shores, lake shores and river banks. The leaves are feather-like, green above and silvery beneath; the flowers are yellow of the shape and size of strawberry flowers. The thickened roots or fleshy, tuber-like branches are edible, raw, cooked or roasted. The roots are best in early spring.

Wild Rhubarb—It grows in moist or open soil such as river banks and recent landslides where it may form pure stands of several acres. The young, bright red, juicy stems are edible.

MOUNTAIN SORREL

BROAD-LEAVED WILLOW HERB

Mountain Sorrel Low, somewhat fleshy perennial herb with erect, simple stem. Leaves mostly kidney-shaped in outline; flowers small, red or green, plume-like. Found throughout the barren grounds and on the higher mountains south of the limit of trees. It generally grows in somewhat shaded slopes and ravines where the snow accumulates during winter. The juicy leaves and stems are edible when raw or cooked.

Broad-leaved Willow Herb—Erect, standing from 6 to 12 inches high with willow-like, dark green and fleshy leaves. Flowers are very large and showy in purple clusters. Grows throughout the Arctic on sandy or gravelly soil such as river or creek beds, where large clumps are often found. The fleshy leaves are edible.

DANDELION

SCURVY GRASS

Dandelion—The young leaves of all dandelions may be eaten raw or cooked as pot herbs.

Scurvy Grass—A widely branching and somewhat fleshy herb, with bright green, roundish or kidney-shaped leaves on short stalks. Flowers inconspicuous, white, in small clusters. When eaten raw as a salad or cooked helps prevent scurvy.

Antiscorbutics—An infusion made by the steeping, in boiling water, of the young twigs and leaves of spruce, hemlock, balsam, fir, or pine has long been known to be of great value in helping to prevent scurvy.

Fruits—During the late summer several kinds of small fruits and berries may be found in abundance in the Arctic. Without exception those found north of the limit of trees are edible and wholesome. Several kinds are undamaged by the frost and may be eaten in spring when the snow disappears. In the

forested area the fruits and berries growing on trees or shrubs are all edible while those on non-woody plants, excepting the wild strawberry, should not be eaten.

Mushrooms—There are many different kinds of edible mushrooms and puffballs growing throughout the North, and after it rains bushels may be gathered almost anywhere. No poisonous species grow in the Northwest Territories, though one poisonous toadstool has been reported from Athabaska Lake, and may be expected in rich woods of the valleys of Slave, Liard, and upper Mackenzie rivers and in the Yukon. It is best to avoid any mushroom with a membrane-like cup or bowl, or scaly bulb at the base above or half buried in the ground and to avoid mushrooms in the early or button stage. Also, mushrooms in beginning decay should be avoided.

Lichens—Lichens are low, variously shaped, grey, brown or black plants. All are edible but most contain an acid that is bitter and sometimes nauseous if not first removed by soaking or boiling in water. They are then dried until brittle and powdered by rubbing between the palms of the hands or by pounding with a stone. When the powdered lichen is boiled it becomes mucilaginous or jellies. It is best used with other foods. If mixed with a small quantity of

MUSHROOM

flour a dough is formed, which may be baked into bread or biscuits or made into soup. Lichens of all kinds are best collected after a rain when moist.

LICHENS

Labrador Tea—A low, much branched, strongly aromatic shrub with evergreen, leathery, canoe-shaped leaves covered below by a dense, brown felt; flowers white, strongly aromatic, in umbrella-shaped clusters. Common in muskeg swamps north to the limit of trees, or beyond. The leaves may be gathered throughout the year and after drying may be used as a substitute for tea.

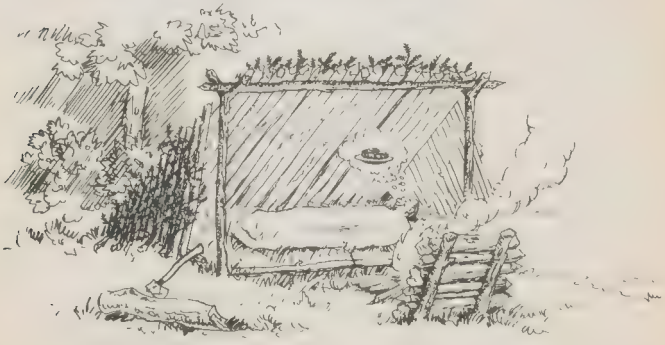
LABRADOR TEA

We wish to thank the National Museum of Canada for special contribution, "Emergency Food in Arctic Canada".

SLEEPING

Although you may want to be awake and on your feet twenty-four hours of the day you must have your rest. By resting we mean not merely sitting down and taking it easy but complete relaxation, physical and mental. In other words go to bed and sleep.

In timbered country you should be able to make very comfortable sleeping quarters. Your axe is now your ace card. A 2½-pound Forester-type axe is ideal, although it is surprising what can be done with even a small hatchet. Remember you may have to "walk out" and an 8-pound axe gets really heavy. A sleeping bag will add greatly to your comfort. The ten-pound, two-in-one, square-bottomed type is ideal. With a good insulation of dry spruce boughs and a spruce bough shelter you should be quite comfortable. If you have a sleeping bag be sure to turn it inside out and dry it every morning.



FIRES

A complete emergency kit includes candles and matches in a waterproof container. The candle is excellent for use in starting fires, quickly warming chilled hands, and waxing your sewing thread when repairing your clothes and equipment. There are several types of fires you may use but we have found

that the "teepee" or "pyramid" fire is the quickest way to obtain heat. Cigarette lighters are of little use and should therefore, not be considered part of the emergency equipment—do not rely on them.

CANDLE

TEEPEE FIRE (General Cooking)

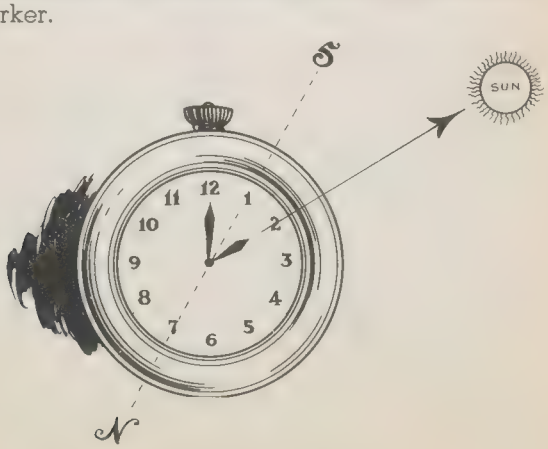
LONG FIRE (Night Fire, Clothes Drying)

WAGON-WHEEL (Signal Type)

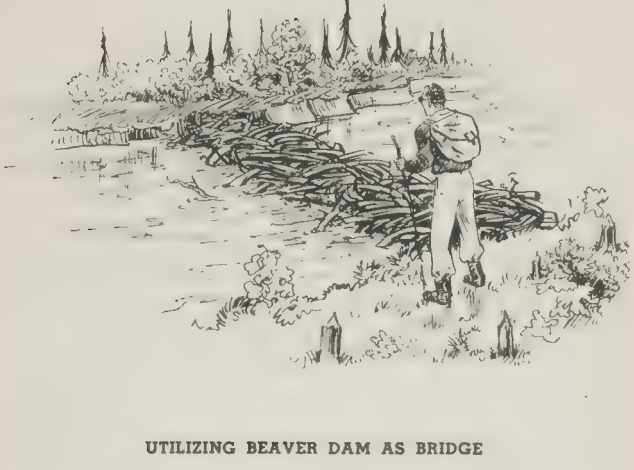
TRAVELLING

A good rule to remember in the North is that the rivers are the highways. If you follow a river downstream you will, in most cases, run across a cabin, permanent campsite or settlement. Game trails sometimes follow along the rivers; if you find one that does keep on it, it makes walking easier. But do not under any circumstances follow a game trail which leaves the river; it will lead nowhere. If you have a fair idea where you have crashed, rely on your pocket compass (it should be a good one). Before starting to travel make sure you have left a note, in a conspicuous place, stating time and date you have left and the compass heading you are on—do not fail to do this. At each camp you make follow this tip. If ground searchers are on your trail it will greatly facilitate the speed with which you can be picked up. Your compass can be checked fairly accurately by using your watch. You will find it necessary to cross streams and sometimes a river. Take your time, figure it out. Do not just plunge in, watch the speed of the water, and pick the most likely crossing place. Northern rivers and streams are very treacherous. We know of a case where a lost pilot crossed a

stream, thirty feet wide and four feet deep, when he could have, with a little investigation, crossed easily and safely on a beaver dam which was about a hundred feet away around a bend. There was even a trail leading to it! Take your time before you get wet. Make sure you blaze a trail behind you. Watch out for moose wallows, because if you step into one you are liable to sink out of sight in the muddy ooze. Don't stop and look when you hear an infuriated hum or buzz at your feet—you're right, it will be a hornet's nest. If you do get stung, treat the affected part with the antiseptic carried in your medical kit, or immerse in cold water. Don't forget to dry out your damp clothing at the end of a day's march, a good rule is to change your socks every evening. Give yourself lots of time to make camp, depending on how soon it gets dark in timbered country or valleys. You need water, wood for fires and signalling, and a good campsite. This operation takes time. When stopping to make camp lay out your signal streamer so that if you are getting water or wood and a searching aircraft comes over, your bright red signal will make an unmistakeable marker.



HOW TO USE WATCH FOR COMPASS



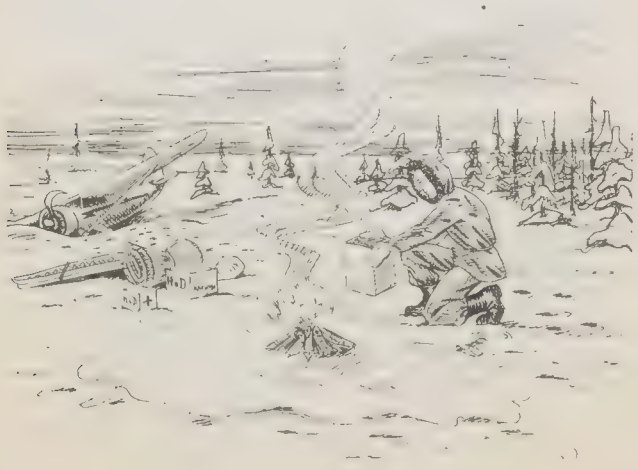
UTILIZING BEAVER DAM AS BRIDGE

WINTER OPERATIONS

If you intend flying the North during the winter months you must be prepared to spend some time in getting equipped. There have been far too many cases of pilots flying this most difficult stretch of country in the world inadequately equipped. It is only when you have had an accident and have been forced to "sit down" in an isolated stretch of the North country in mid-winter that you realize how smart—or how foolish, you have been. If, as has been before mentioned, you are not equipped and are found early in the search, the old saying is, "Brother, I wonder whose time you have borrowed?" If you are not lucky—well, you are just not lucky. Take our word for it, get equipped. Snowshoes, bed rolls, mukluks and snow glasses are among the most needed items.

CLOTHING

You should make sure that your underwear is of the heavy, all-wool type and that you have a change. Your socks should be heavy wool, worn over light wool and cotton, a change in this item is also a "must". Wool pants, wool shirt, ski cap and wool scarf are recommended. Your footwear has to be moccasins, muklùks or shoe packs, remember you will be walking on snowshoes so your footwear has to be comfortable as well as serviceable. A parka with a well adjusted, fur trimmed hood is advisable, as well as sail silk or like material for wind pants. Wool inner mitts with canvas or gabardine outer mitts make very good covering for the hands, we prefer canvas in lieu of leather because they retain their shape when drying. You will have to be very careful when drying your clothing in the evening to make sure that nothing is scorched. You may get away with this carelessness during the summer but not in the winter. Snow glasses of the unbreakable antigas-type are desirable.



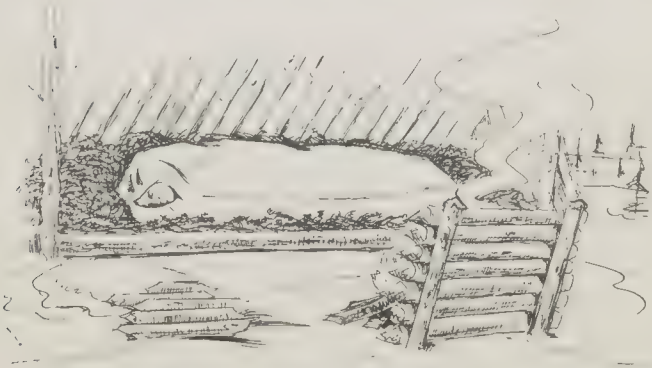
WATCH YOUR CLOTHES WHILE THEY ARE DRYING

RATIONS

With our H and D and Ross Ration the variety of food is of such a nature that, to obtain the maximum nutrition from the combination of foods contained in these rations, you should take time to make a fire and cook each meal thoroughly, as directed. In preparing a fire and cooking a meal, you will find that the relaxation of resting and eating will do you far more good than eating a cold meal on the march. We cannot stress too greatly, TAKE YOUR TIME.

SLEEPING

Take time to build your shelter. Be very careful after you have put down your flooring of spruce boughs to keep off any snow which may be on your



USING SPRUCE BOUGHS FOR SHELTER FLOOR

footwear. Scrape away snow from in front of your shelter for your fire. Don't forget to set up a reflector made from small trees or part of your aircraft; this is important as you are going to need all the heat available. Be sure your clothing is dry before retiring, and that there is enough wood for the fire in the morning. It is surprising how good an insulation spruce boughs and spruce tips make. Do not worry about freezing to death as this has been greatly exaggerated. The only time you need to be careful about going to sleep is when you are in an exhausted condition. Normally you will awaken when you get cold. If you are using a sleeping bag do not completely cover your face. You exhale carbon dioxide and continuous breathing of these fumes will cause a severe headache.

AIRCRAFT COWLING ROCK LOG REFLECTOR

TRAVELLING

You should have snowshoes and your footwear should be mukluks, moccasins or shoepacks. If it is snowing very hard do not travel, unless you know exactly where you are going. Watch your river beds and make sure, before you attempt a crossing, that the ice will bear your weight. In any case carry a light pole or sapling at least twelve feet long. If you do fall through the ice, the pole held firmly in your hands will keep you from sinking under the ice, and will help you to get to stronger ice. Stay to your timber patches for camping, take time to remove the heavy top snow. Snow glasses are a "must".

SHELTERS

A "paratepee" of the silk or nylon variety is indispensable; the fourteen-segment-type weighs about three pounds, and has been used for a number of years by us. By using this type of shelter in conjunction with a bed roll, you simply "take up thy bed and walk". This type of teepee can accommodate four men quite easily, with ample room for a fire in the centre. An open-face shelter is excellent to keep you warm, as well as mentally occupied while building it.

USING PARACHUTE FOR SHELTER

Cut 'chute at segments Nos. 1 and 14 from top to bottom. Cut shroud lines, leaving two feet at bottom of 'chute. Pass two poles through hole at top, hooking the lines there to poles. Force poles in ground, and then pass about ten other poles through to form teepee. Where 'chute joins at 1 and 14 is your door.

FISH

For the inexperienced man left to his own resources in the Arctic barren lands or in the northern forests fresh-water fishes perhaps are the most important emergency food as fish can be caught in many places and with simple equipment.

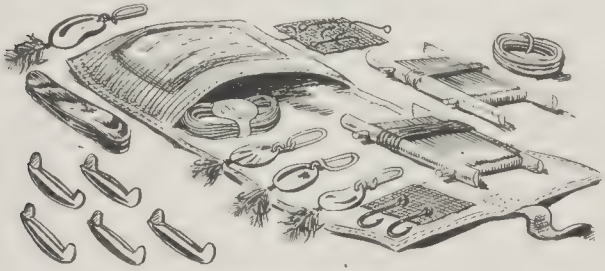
Technique—Gill nets provide the easiest and most efficient fishing gear. A 4½ inch mesh net 30 to 40 feet long weighs but a few pounds and in most places will provide plenty of food for a small party. The technique varies for the different kind of fish and with the locality.

Gill nets should never be used in swift water. In a large river, nets should be set in quiet water above or below an eddy, while in a small stream it may sometimes be practical to set nets across the stream. In a lake, nets should be set at right angle to the shore, preferably off a point or headland where the water is deep close to the shore. Nets may also be set near the mouth of a small creek or tributary.

NET STRUNG ACROSS STREAM

A gill net used in open water should have floats along the upper edge, spaced at about six foot intervals and sinkers or weights along the bottom edge opposite the floats. The net, when set, should float suspended in the water from the float, anchored

to the bottom while the opposite end should be attached to some object on the shore. The net may be hauled in and out by a halyard fastened to the large float. If no boat is available a short net may be pushed out from shore by the use of a long pole, or several long poles lashed together end to end. Guy ropes to the end of the pole then holds the net in place. In wooded country a small raft may be used in place of a boat.



HARGREAVES AND DICK FISHING KIT

Fishing with a net can also be carried out successfully in winter, in rivers and in lakes, through the ice. If the ice is thick it is not easy to set the net but when the ice is less than a foot thick it may be done without much difficulty. First a straight row of holes should be cut in the ice, spaced ten to twelve feet apart. Then a thin rope or halyard is passed under the ice by means of a long, slender, forked pole used in the manner of a darning needle which is passed from hole to hole. Each end of the net is then fastened to the line and by it is hauled into place under the ice. The rope is left permanently fastened to the net so that when the net is hauled out on the ice for inspection or removal of fish, the line temporarily takes its place under the ice.

In large lakes baited hooks may be set under the ice for lake trout. The hook should be placed at a depth of five or six feet below the ice and not too far

from the shore. In muddy places along river banks or on the shore of lakes, in places where small streams enter, ling or burbot may be caught under the ice in water but a few inches deep. This fish never bites except in the dark. In similar places, but in deeper water, pike, jackfish or inconnu may be taken on hooks during the day. When fishing in this way the line is fastened to a short stick held in the hand. The hook is moved by a slight vibration of the hand. The lakes and rivers of northern Canada are inhabited by many different kinds of fishes. While all species are edible some are more important than others. The following are the most important:

Pike or Jackfish is abundant in practically all waters of the forested parts of continental Canada. It is less common north of the tree-line and is absent in the Arctic Islands.

Whitefish. Several members of the whitefish family are very abundant in lakes and rivers of the Mackenzie River Basin as well as in other water systems rising in forested country. No whitefish are known to occur in the Arctic Islands. Whitefish also may be taken in the sea near the mouth of rivers.

Lake Trout is an important food fish which is common in most large lakes in the Yukon and throughout the Mackenzie and Keewatin districts. Large specimens may weigh forty to fifty pounds.

ANIMALS

Most of the northern species are harmless unless you deliberately go out of your way to bother them. The bears—black, brown, and even the grizzly—are only dangerous when they have their young, early spring, or when suddenly startled. Most of the time when you are travelling the animals will hear you and deliberately avoid your path. The numerous fallacies regarding wolves have been proven to be just woodsmen's tales, and we have never heard of

an actual case where wolves have deliberately attacked a human being in good physical condition. Deer and moose will keep out of your way, but these animals have been known to attack during the mating season.

Caribou are grazing animals and are widely distributed in Arctic and sub-arctic countries. The barren land caribou is absent in East Greenland, but is found on the west coast of Greenland from lat. 62° to 72° N. It is most abundant, however, and is nearly always found at some distance from the coast. In Baffin Island it is scarce along the east coast but

CARIBOU

tolerably common in the interior and along the west coast. In Ungava caribou are not abundant but are found in limited numbers in the northern parts. In the Arctic Islands caribou are found in some of the larger islands, but they are not plentiful. By far the largest herds are met on the great interior plains between Hudson's Bay and the Mackenzie River. In the Yukon and in Alaska caribou are generally restricted to the arctic coast or to alpine parts of the interior. Caribou are most easily approached when in large numbers whereas singly or in small numbers they are watchful and less easily stalked. Their eyesight is poor but their sense of smell and hearing is very acute. For this reason the hunter should always stalk caribou against the wind. If no cover is available the hunter

should avoid sudden or rapid movements because caribou are easily frightened. By approaching a herd slowly, taking a zig-zag course and making frequent stops, the hunter may be able to get very close. Caribou may be hunted with any kind of gun. In Greenland a 30:30 rifle is often used.

Brown or Grizzly Bears of several kinds are found on the barren grounds of the Mackenzie district east of Bathurst inlet and along the coast, and in the mountains of Yukon Territory and Alaska. All brown bears hibernate and, as a rule, are not seen from October to May. During the summer they are most frequently seen in hilly country or along rivers, streams, or lakes. In the autumn they are often found in places where berries are plentiful or near colonies of ground squirrels on which they feed. Brown and grizzly bears are not easily frightened and if approaching against the wind the hunter may get fairly close. A wounded bear or a mother bear with young sometimes will attack man, but otherwise bears are harmless when not molested, and may be driven off by shooting or by the rattling of equipment. The flesh of young bears is very good; that of old animals may be tough, especially in the spring when the bears are in poor condition after their winter's sleep.

GRIZZLY BEAR

Black Bears are forest animals. They are vegetarians, fish eaters, and scavengers and are most often found along rivers and streams. They are timid animals that are rarely known to have attacked man; when frightened they usually climb a tree.

Moose. The moose inhabits the boreal forest and may be found from Labrador to Alaska north to the tree-line, or, occasionally, a short distance beyond the forest. Moose are browsing animals, feeding on twigs, and frequent the willow flats of river valleys and lake country or burnt-over country but are rarely, if ever, seen in coniferous forest. Because of its large size and excellent meat the moose is one of the most important big game animals of the North.

Mountain Sheep are found only in the high mountains west of the Mackenzie River and in the mountains of the Yukon Territory and Alaska. Mountain sheep are wary and difficult to approach. Their eyesight, hearing and sense of smell are exceptionally keen and the hunter, to get within shot, must stalk his prey with extreme care. The best method is to get above the sheep. Sheep meat is very palatable.

Small Game is nearly always more abundant than large game and, what is important to a person marooned in the North, is easier to hunt.

The Arctic Hare is a good deal larger than a snowshoe rabbit. It is found from Greenland to Alaska and generally in low mountain country and in hilly rock strewn places where the rocks and boulders provide shelter or cover. In summer it is found at high altitudes, often near the snow-line, while in winter it frequents lower country. It is a solitary animal except during the mating season when large numbers may be seen together. When approaching from above the hunter is usually able to get very close.

Snowshoe Rabbit inhabits the northern forest from Labrador to Alaska. Its numbers fluctuate greatly in more or less predetermined cycles of about ten years. Thus in peak years rabbits occur in incredible numbers while in other years they may be very scarce. When the snow is deep the rabbits make trails in the forest and are then easily caught in snares set in

the trails. A rabbit snare is made from a two-foot length of steel picture-wire, the end of which is fastened by a bit of string to a willow or a suitable stick near a rabbit's trail in the snow. By means of a slip-knot a 4-inch noose is made which is placed vertically at right angle to, and about 8 inches above, the bottom of the trail. A rabbit using the trail at night gets its head caught in the noose and is quickly strangled. Although the flesh is not very nourishing the rabbit is one of the important game animals of the northern Indians. Twisted strips of rabbit skin woven into a loose-mesh fabric, when covered with light cotton cloth for protection, make light and warm blankets. The skin of a rabbit makes an excellent fur sock.

HOW TO SNARE A RABBIT

The Parry Ground Squirrel is a small animal living in colonies in sandy and gravelly outbanks and ridges in the arctic barren grounds from Hudson Bay to Alaska. In such places the ground may be honeycombed by its burrows. It hibernates underground from September - October to May. During summer it is easily snared or shot. Its flesh is eaten by the Eskimo and is quite palatable, especially in late summer when the animals are fat.

The Porcupine may be found in the mountains of Yukon and Alaska and elsewhere in the northern forest but is never very common. It is very easily killed, even with a stick, and its flesh is fat and very nourishing. The porcupine often spends long periods in a tree and in winter sometimes seeks shelter in rocky caves.

The Muskrat is not a rat; it lives in lakes and streams in the forested part of the North. It is most common in the deltas of large rivers and generally avoids rocky country. In summer it may be shot when swimming. In winter it builds "houses" on top of the ice of lakes or burrows into the banks. The flesh is palatable and very nourishing.

The Beaver inhabits small streams, and lakes of the wooded country from Labrador to Alaska. The flesh, like that of the muskrat, is excellent and very nourishing.

BIRDS

During the summer numerous kinds of birds breed on the barren grounds and in the Arctic Islands. The most important food birds are ducks, geese and ptarmigan but other birds such as cranes, swans, loons, hawks and sea-gulls can be eaten as well. Birds' eggs, too, can be eaten wherever found. During winter only a few species of birds remain in the Arctic. The most important is the ptarmigan, but in some districts snowy owls and ravens may be seen.

PTARMIGAN

When fat, the snowy owls are very good to eat. In winter the willow ptarmigan often frequents river banks and willow thickets to feed on the leaf-buds. In such places ptarmigan can easily be snared. Near the edge of the thicket and parallel to it a miniature fence is made by placing small willow sticks in the snow. Here and there openings or "doors" are left for the ptarmigan to go through. In the "doorways" slip-knot nooses 3-inch in diameter, made from thin steel or brass wire, are placed so that the ptarmigan will get its head caught in the noose. Once caught the bird quickly strangles. By this method large numbers of ptarmigan may be snared in one night in one willow thicket.

NATIVES

Indians—All Indian tribes of northern Canada are forest people and even today seldom venture far into the barren grounds. All are inland people and depend largely on land animals and fresh water fish. Indians are expert in "woodcraft", and by their often uncanny knowledge of the habits of animals can obtain game or food where an inexperienced white man would starve. Even so, Indian tribes are sometimes unable to procure game and, in former times especially, famine was not uncommon. Like the Eskimo the Indians of Canada through contacts with white men have adopted many of his customs and, when available, use considerable amounts of white men's food. In their primitive state the northern Indian, as the Eskimo, lived almost exclusively on a diet of meat and fish. Indians appear less friendly and straightforward towards strangers, but when well treated they too are friendly and helpful to anyone in need. The language of the Indians, like that of the Eskimo, is very difficult for a white man to learn. The dialects of the various Indian tribes differ so considerably from one another that an Indian from

one tribe rarely can understand the language of the more distant tribes. A number of Indians understand some English and French.

Eskimo—The Eskimo are friendly and very intelligent people and when well treated are extremely helpful, hospitable, and trustworthy. Practically all Eskimo have had some contact with white men and, with very few exceptions, they have all been converted to the Christian faith. In west Greenland and in some parts of Alaska the Eskimo have largely adopted the white men's ways of living and have well ordered, more or less civilized communities. The language of the Eskimo is very difficult and few white men can claim complete mastery. Today most Eskimo of Alaska and a number of those inhabiting arctic Canada understand some English.

HAPPY LANDINGS

This little booklet you may find handy; keep it with you, read it as often as you can; we hope you never have to use it, but if you do, and follow the instructions carefully, you should make out okay.

HARGREAVES AND DICK

Medical Precis

COLIN A. ROSS M. D.

(Parachute Surgeon)

FIRST AID

If you have made a forced landing in isolated terrain, the least injured person in the party becomes the "Doctor".

First Aid is merely the application of a few common sense rules and simple surgical principles. It is not wise to attempt to do too much. The conditions that you are most likely to have to treat will be those arising from parachute jumping—aeroplane crashes —fires—exposure and camp accidents cannot be overlooked. In all injuries the first condition to treat is:

"SHOCK"

Shock is a condition which may arise from any severe injury (fracture, burn, large wounds with or without loss of large amounts of blood).

The patient in shock is cold, clammy, restless, breathes as though he is hungry for air, has a greyish color and the pulse is rapid and faint. This condition, if untreated, will very frequently pass on to death.

There is only one adequate treatment for shock and that is the administration of transfusions of whole blood or blood plasma or serum. However as first aid measures the following procedures are very helpful:

1. **Stop bleeding**—and this is best done by direct pressure on the wound with a sterile or clean dressing or if necessary anything that is handy. Tourniquets may be applied above the wound where bleeding is from an arm or leg, but remember that tourniquets are dangerous and should be loosened at least once every half hour to allow blood to circulate to the limb below the tourniquet and prevent gangrene. If, however, the limb is amputated by the injury then put the tourniquet on as low as possible, and leave it on tight.

Pressure points for stopping bleeding may be seen in any good first aid book.

2. **Relieve pain**—This is done by giving whatever pain-killing drug you have in its proper dose, making the patient comfortable, prevention of movement in the injured part by splinting when possible.

3. **Keep Patient warm**—By covering the patient with whatever you have handy (don't forget to put something underneath him also)—but don't make him too warm or he will perspire more and increase his shock, so the application of external heat is not necessary (hot water bottles, etc.) unless the weather is cold.

4. **Give stumulating drinks** (not alcohol)—hot, sweet tea is excellent.

FRACTURES

A fracture is a broken bone and is recognized by the fact that there is—pain—swelling—deformity—inability to use the broken part—and the bone may bend at a point where there is no joint.

When in doubt treat as if a fracture were present.

The first aid treatment of a fracture is very simple.

Treat for shock.

Apply a splint—this should be done without moving the patient from the place where he was injured (splint them where they lie) unless other factors make it necessary to move him first.

A splint consists of anything long enough and strong or rigid enough that when bound on to the broken part will prevent movement at the point of fracture and of the joint above and the joint below the break.

A splint should be bound on to the limb firmly but not so tight as to obstruct the circulation. Where the splint comes in contact with bony points of the limb it should be padded.

"Do not attempt to reduce the fracture".

COMPOUND FRACTURES

Are fractures where there is a wound at the site of the fracture—the bone does not have to be protruding through the skin.

Treat this type of fracture the same as any other, except—the wound must be dressed also.

Fractured Clavicle—(collar bone)—may be treated simply by putting the arm in a sling.

Fracture of the Humerus—(upper bone of the arm) —may be treated by a sling and by binding the arm to the side.

Fracture of the Leg—if no splint is available, bind the broken leg to the other leg.

Fractured Ribs—are treated simply by applying adhesive tape or elasto-plast all the way around the chest at the point of pain and for a hand breadth above and below this point—the patient exhaling as the adhesive strip is applied.

WOUNDS

In all wounds the first danger is from bleeding—so stop the bleeding first. Then, if it is possible without danger of bleeding, the wound may be cleansed with soap and clean (preferably boiled) water but this is not necessary if it causes the patient too much pain, and if he can **see a doctor** within 48 hours.

Dress the wound with sterile dressings or the cleanest materials available—large leaves are preferable to questionably clean cloth next to the wound —they may be applied to cover the wound in a thick layer and bound on with torn strips of clothing.

If possible put the part at rest by a splint or a sling.

Sucking Chest Wounds—where the chest has been pierced and there is a sucking sound from the wound every time the patient breathes.

Plug this wound—Get a doctor as soon as possible. Put on a dressing that is airtight so that air is not sucked into the chest. Vaseline, or any ointment, applied in a thick layer over the wound helps to make it airtight. The wound edges may be pulled together with adhesive tape before applying the dressing, or gauze may be stuffed into the wound.

Wounds of the Abdomen—Treat for shock. Give nothing by mouth. Dress the wound. If the intestines are protruding replace them if this is easily possible, otherwise cover them with a large **wet** dressing.

Get a doctor if at all possible.

HEAD INJURIES

Get a doctor as soon as possible. Keep the patient lying down with the head lower than the feet, and lying over half way onto his face but with no obstruction to his breathing if he is unconscious.

Take out his false teeth, if present.

Clean out his mouth.

If he vomits make sure that his mouth and throat are kept clear of vomited material.

If a patient is knocked unconscious and then regains consciousness and appears to be all right—keep an eye on him—he should be made to lie down and rest with someone watching, or at least have some one with him for the next eight hours.

If he lapses into unconsciousness again, this suggests hemorrhage inside the skull and a **doctor should be obtained at once,** if the man's life is to be saved.

BURNS

All burns should be treated in the same way as far as first aid is concerned.

Treat for shock.

Do not attempt to clean the burned area.

Cover the burn. Dressings over a thick layer of vaseline or some none-irritating ointment is best, but merely dressings alone will be all right. Dressings should be thick and firmly, but not too tightly, applied.

In an arm or leg the part may be splinted.

Give **lots** of fluid by mouth—preferably hot, sweet liquids.

Burns, except over very small areas, are dangerous and a **doctor should see** the patient as soon as possible.

INFECTIONS

Recognized by redness, swelling, pain of the part infected.

Best treated by soaking the part in hot water to which has been added one teaspoonful of salt per pint of water. Or by putting on hot compresses made by wringing a towel or a piece of clean blanket out of hot water.

Open Wound Infections—If there is an open infected wound have sterile dressings on the wound and put something waterproof over the dressing—then put on hot compresses.

Fingers or hands—Infected fingers or hands are dangerous and a doctor is needed.

Boils—Boils are best treated by compresses until they "come to a head". Then paint them with antiseptic and open well with a sterilized knife or needle and put on a Sulfamul dressing. **Do not squeeze the boil.** Boils on the face are dangerous—**don't neglect them—don't squeeze them.**

EYES

Eye injuries are dangerous and require a doctor.

If something gets into the eye it may be removed with a little cotton wool wound tightly over the end of an applicator stick. Then put a little of the Opthalmic ointment on the inside of the lower lid, close the eye and roll the eyeball around for a few seconds.

Snow Blindness—Snow blindness or inflammation from looking at a welding arc may be very painful. Treat by using Opthalmic ointment and keeping the patient in the dark with cool cloths on the eyes.

MISCELLANEOUS FIRST AID

Diarrhea- Diarrhea can be treated by taking a tablespoonful of the Bismuth Mixture after every bowel movement until the diarrhea stops.

Appendicitis Pain in the belly cramp at first. There may be some vomiting. Pain may settle in the right side. **Don't take a laxative. Get a doctor** if at all possible.

Indigestion For indigestion one or two soda mints with hot water frequently will give relief.

Sore Throat—Hot gargle of one teaspoonful of salt to one pint water. Take one Aspirin Compound every three hours.

Sterile Dressings—Handle sterile dressings by their edges--**keep them sterile.**

Cleanliness—Wash your hands well before treating wounds. Burns are wounds so treat them as such but do not attempt to clean them.

ESKIMO WORDS AND PHRASES

Syllables spelled like familiar English words are to be pronounced just that way.

Syllables printed in heavier type are to be accented.

WESTERN ESKIMO

I am hungry ..... **Kish**-tu-ah (the **i** long, as in **mice**)

Our food is all gone .... **Neck**-out-voot **nahng**-ock

Water ..... Meck (fresh); Mahk (salt)

I am thirsty ..... Meck-**soosh**-too-ah

Give me a drink of tea . **Shy**-oo-mick merry-**sing**-a

I am cold ..... **Crow**-too-ah

My boots are wet . . .. **Comic**-sig-kah maht-**soong**-uk

My clothing is wet ..... Aht-**koo**-kah maht-**soong**-uk

Bring a dog-sled .... Ick-**calm**-erak ahk-fah-**loo**-kick

Yes ..... Ahng

No. ..... **Khang**-ah

Look! (at my frostbitten wrist, etc.) ..... Tahng!

I don't understand..... Ah-yo-koo-**chett**-oo-a

I need food ..... **Neck**-a-mick pee-**yoosh**-tu-ah

Bring men (to help) ..... Ahng-**oh**-tit **tide**-loo-kay

How far is it to the trading post? .... **Kite**-loon yock-**shig**-ta kip-oosy-**vjg-a-moon**

Matches; fire ..... **Spitz**-cot; **Keen**-er-it

Native stove (seal-oil lamp) ..... Kah-**minny**-ock; **Keen**-o-gak

Come quickly! .. .. Pah-**tah**-gah-mick **tight**-ah

Gun ..... **Noo**-tick

To the right (dog driver's term) ..... Jee!

To the left (dog driver's term) ..... Haw!

Which way? ..... Nah-**goon**?

Tobacco .... To-**bak**-u-mick; Chew-**yah**-mik

Where is there a white man? .. .. **Nah**-ne **kah**-sah **tahng**-tah

EASTERN ESKIMO

I am hungry ..... Kah-**poong**-ah

Our food is all gone ..... **Ner**-key-voot peeto-**hung**-i-tu-goot

Water ..... **Ee**-mick (fresh); **Ee**-mock (salt)

I am thirsty; I need fresh water ..... Kee-**poong**-ah; **Ee**-mick pee-yuma-**voong**-ah

Give me a drink of tea! (literally, I need tea!) ..... **Tee**-mick pee-yuma-**voong**-ah

I am cold ..... Oo-**voong**-ah **ick**-key

My boots are wet ..... **Kah**-mig-ga **cow**-shook-toot

My clothing is wet ..... **Ah**-no-wog-ga **cow**-shook-toot

Bring a dog-sled! ..... Comma-**tee**-nick eye-**shook**-too

Yes ..... **Ee**-mah; **Ah**-high; Ah-high-**la**

No ..... Nowk; **Nah**-ga; **Ah**-guy

Look! (at my frostbitten wrist, etc.) ..... Tah-**koo**!

I don't understand (referring to what has been said) ..... Two-key-siggy-**lahng**-ah

I need food ..... **Ner**-key pee-yuma-**voong**-ah

Bring men to help ..... Ahng-oo-**tee**-nick ky-ko-see-**geet**

How far is it to the trading post? ..... Kah-bloona-**tah**-lick **conn**-pak oo-ah-**sick**-pa?

Matches, or fire ..... **Ee**-koo-mock

Native stove or seal-oil lamp ..... **Koo**-di-lick

Come quickly! ..... **Kigh**-geet or **Kigh**-sa-**geet**

Gun ..... **Cook**-e-oo

To the right (dog driver's term) ..... Owk! or Howk!

To the left! (dog driver's term) ..... **Owk**-a! or **Ow**-ha! **Huh-dal**

Which way? ..... Now koot?

Tobacco ..... Tobacco-mik

Where is there a white man? ..... Kah-**bloon**-ah nowk?

"We Know the North"

HARGREAVES AND DICK

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